

## Site Evaluation Approach at an Abandoned Uranium Mine on BLM Lands near Grants, New Mexico

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### **ABSTRACT:**

The Barbara J. Legacy (Barbara J.) mine site is located within the Ambrosia Lake sub-district of the Grants Uranium District in northwest New Mexico. The site is a complex consisting of three separate mines that produced uranium ore from the mid-1950s to the 1960s. Uranium ore at this facility was mined from carbonate sedimentary rocks of the Jurassic Todilto Limestone. Past investigations at the Barbara J. mine have focused on radiological characteristics of the soils and waste materials on the surface. However, it was determined that these radiological efforts alone did not adequately characterize potential impacts to human and ecological receptors. As a result, a site evaluation (SE) was implemented to assess historical sources and identify contaminants of potential concern, including uranium and other metals, to refine a conceptual site model. The approach focused on collection and analysis of soil and arroyo sediment samples for total metals (including uranium) and their leaching potential using the Synthetic Precipitation Leaching Procedure (SPLP). In addition, both ecological (animal and plant threatened and endangered species) and human risk (ranching) receptors were included in the evaluation. Lastly, SPLP results indicated that a variety of metals including aluminum, arsenic, chromium, cobalt, copper, iron, lead, manganese, nickel, uranium, and zinc exhibited leachable characteristics. However, because of the very remote location of this site, these metals concentrations provided justification of a uranium-only driven cleanup.